Trend Study 8B-10-00

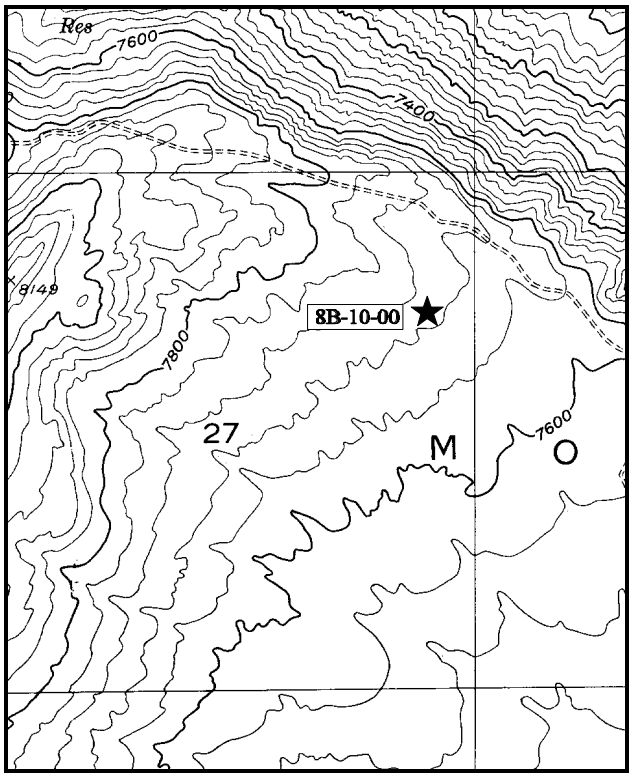
Study site name: Sagebrush Ridge . Range type: Big Sagebrush-Grass .

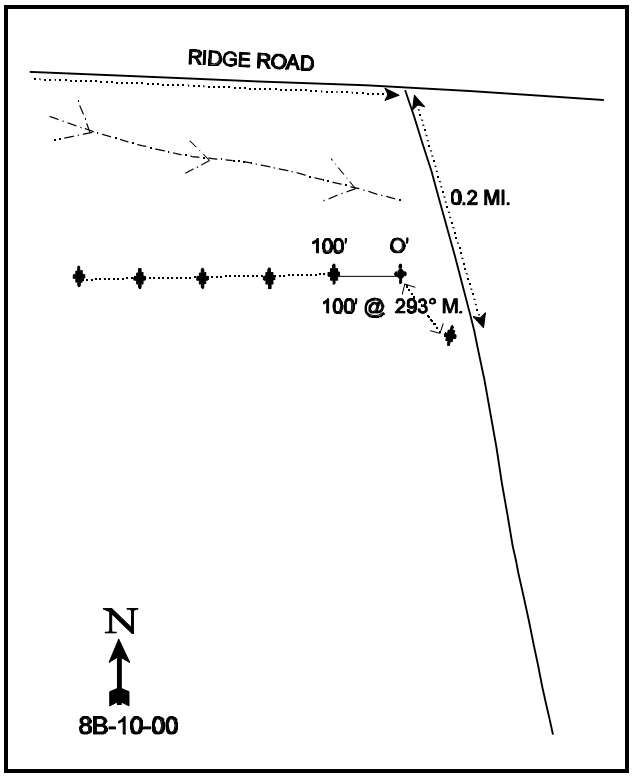
Compass bearing: frequency baseline 242°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From Dutch John, proceed north towards Antelope Flat on Highway U.S. 191 for approximately 8 miles. Before the Wyoming border, turn east on the Antelope Flat Road towards Goslin Mountain. Go 2.8 miles and turn right towards Goslin Mountain. Bear right and drive 1.3 miles to a gate. Continue 4.5 miles to a fork. Bear right and drive 0.2 miles. There will be a witness post on the west side of the road. The 0' post is 100 ft away at 293/M. The site is marked with full high fence posts. The 0-foot post is marked with a browse tag # 33.





Map Name: Goslin Mtn. Diagrammatic Sketch

Township 3N , Range 23E ,Section 27 UTM 4536922.294 N, 643044.360 E

DISCUSSION

Trend Study No. 8B-10 (9-21)

This trend study, Sagebrush Ridge, also samples a mountain big sagebrush-grass type at an elevation of 7,700 feet with an eastern aspect. Slope is moderate ranging from 5% to 10%. Cattle utilize this area in the summer when not concentrated in the relatively small wet meadows nearby. Deer also use the area in the summer. A few elk pellet-groups were noted yet none were encountered within the quadrats. A pellet group transect read parallel to the study site baseline in 2000 estimate 19 deer, 1 elk, and 1 cow days use/acre (47 ddu/ha, 3 edu/ha and 3 cdu/ha). All cattle pats encountered were from last fall. Livestock graze this area during the summer. They are currently allowed to graze for one month at 400 AUMs. Most of the cattle grazing in this area is concentrated on nearby meadows. Sage grouse also use the area and 10 adult birds, many with young, were seen near the site during the 2000 reading.

The soil is moderately shallow and rocky but rooting depth does not appear to be a limiting factor. Effective rooting depth is estimated at only 11 inches due to a calcified hardpan and bedrock in some areas. It has a sandy loam texture with a neutral pH. Phosphorus is limited at 7.8 ppm where values less than 10 ppm can limit normal plant growth and development. Percent bare ground is higher on this site than at West Goslin (8B-9), but it is still relatively low at 11% in 1995 and 12% in 2000. The abundant and well dispersed vegetation and litter cover adequately protect the soil from erosion.

The dominant browse on this site is mountain big sagebrush which provides about 75% of the total browse cover. In 1995, density was estimated at 3,580 plants/acre, 76% of which were mature. Use was moderate to heavy, but vigor was normal on most plants with percent decadence at only 18%. Dead plants were common. However, it appears that winter injury and snow mold is responsible for most of the decadence and some of the dead plants on the site. Several areas nearby, especially those with more northern aspects, contain pockets of dead sagebrush due to deep snow accumulation from the winter of 1992-93. During the 2000 reading, population density was estimated at 4,220 plants/acre. Use is mostly light but due to drought, vigor is poor on 22% of the plants sampled. In addition, percent decadence has increased to 28% with 23% of the decadent sagebrush classified as dying. On the positive side, young plants are numerous and represent 19% of the population.

Bitterbrush is another important browse species on the site. There was an estimated 760 plants/acre in 1995. Utilization was reported moderate to heavy with 53% of the shrubs displaying heavy use (>60% stems browsed). Even with this heavy use some bitterbrush were in flower. Vigor was good on most plants and percent decadence was low at 3%. During the 2000 reading, density was estimated at 680 plants/acre. Use is lighter with only 15% of the shrubs sampled being heavily browsed. Vigor remains good and percent decadence is low. Other less desirable browse encountered on the site include mountain low rabbitbrush, wyeth eriogonum, slenderbush eriogonum, and gray horsebrush.

The Herbaceous understory is abundant and diverse with a composition that is very similar to West Goslin (8B-9). Eleven perennial grasses and one sedge currently (‘00) produce 26% cover which accounts for 40% of the total vegetation cover. Dominant species include: Carex, needle-and-thread, letterman needlegrass, mutton bluegrass and thickspike wheatgrass. Forbs are also abundant and diverse which include several preferred species including: pale agoseris, sulfur eriogonum, silvery lupine, bluebells, low penstemon and lambstongue. These forbs currently (‘00) provide 65% of the forb cover and offer excellent spring forage for deer and elk.

1995 APPARENT TREND ASSESSMENT

Estimated cover for bare ground is only 11% with abundant vegetation and litter cover. This cover is also well dispersed, adequately protecting the soil from erosion. Trend for soil appears stable. The browse trend appears to be slightly down with a moderately high proportion of the decadent plants that are dying. The high number of dead plants encountered is evidence of a reduction in density in the past, either by unusually heavy snow cover during the 1992-93 and the 1994-95 winters, or winter injury coupled with drought. Currently the population appears healthy, utilization is mostly light to moderate with percent decadency moderately low at 17%. The herbaceous understory contains a large variety of grasses and forbs. Of the 12 species of grasses and one sedge encountered, most are desirable forage species. The forb component also contains several desirable species. The herbaceous understory appears in relatively good condition.

2000 TREND ASSESSMENT

Trend for soil is stable with abundant and well dispersed vegetation and litter cover. Trend for mountain big sagebrush is mixed. Use is lighter compared to 1995 but percent decadence has increased from 18% to 28% with 22% of the sampled sagebrush displaying poor vigor due to drought. In addition, 23% of the decadent sagebrush were classified as dying. On the positive side, young recruitment is improved with young plants accounting for 19% of the population. The less abundant but preferred bitterbrush, shows less heavy use. Vigor is good and percent decadence low at 6%. Taking all of these factors into consideration, trend for browse is considered stable. Drought conditions are obviously effecting the health of the sagebrush but a return to normal precipitation patterns will improve this. Trend for the herbaceous understory is down slightly. Sum of nested frequency of perennial grasses declined slightly while frequency of perennial forbs declined more substantially. Due to the dry conditions, nested frequency of annual forbs declined by 54%.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - down slightly (2) especially for forbs

HERBACEOUS TRENDS --
Herd unit 08B, Study no: 10

Type	Species	Nested Frequency '95	Nested Frequency '00	Quadrat Frequency '95	Quadrat Frequency '00	Average Cover % '95	Average Cover % '00
G	Agropyron dasystachyum	186	*135	57	46	2.15	1.35
G	Carex spp.	177	185	58	68	5.86	7.49
G	Festuca ovina	43	58	14	20	1.47	1.39
G	Koeleria cristata	6	1	2	1	.01	.03
G	Melica bulbosa	13	10	4	3	.24	.06
G	Muhlenbergia richardsonis	5	-	2	-	.06	-
G	Poa compressa	96	*38	33	14	.64	.94
G	Poa fendleriana	2	*112	1	39	.03	2.22
G	Poa pratensis	8	6	3	2	.04	.15
G	Sitanion hystrix	57	36	24	16	.45	.31
G	Stipa columbiana	19	16	9	5	.42	.39
G	Stipa comata	188	145	60	42	3.63	5.78
G	Stipa lettermani	95	118	29	33	2.32	6.04
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		895	860	296	289	17.35	26.19
Total for Grasses		895	860	296	289	17.35	26.19
F	Agoseris glauca	181	*71	68	34	1.12	.78
F	Antennaria dimorpha	2	-	1	-	.03	-
F	Antennaria rosea	12	13	5	5	.07	.22
F	Arenaria congesta	6	10	2	4	.18	.31
F	Arabis drummondi	3	*17	2	7	.01	.06
F	Astragalus convallarius	26	19	13	9	.72	.39
F	Astragalus spp.	-	1	-	1	-	.03
F	Calochortus nuttallii	3	-	1	-	.00	-
F	Collomia linearis (a)	198	*1	75	1	1.58	.00
F	Collinsia parviflora (a)	193	*43	60	14	1.64	.07
F	Cryptantha spp.	8	2	3	2	.01	.01
F	Cymopterus longipes	48	*36	26	16	.40	.21
F	Delphinium nuttallianum	8	7	4	2	.02	.01
F	Erigeron eatonii	22	27	11	12	.28	.19
F	Eriogonum umbellatum	38	40	14	15	1.29	2.29
F	Gayophytum ramosissimum (a)	9	*-	3	-	.01	-
F	Lithospermum ruderale	29	36	12	14	.62	1.00
F	Lomatium triternatum	3	4	1	2	.00	.06
F	Lupinus argenteus	135	123	59	55	3.95	3.00
F	Mertensi fusiformis	56	50	25	22	.71	1.46

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'95	'00	'95	'00	'95	'00
F	Penstemon humilis	42	*8	18	3	.29	.04
F	Phlox longifolia	172	154	62	58	.79	.91
F	Polygonum douglasii (a)	105	*30	40	11	.25	.05
F	Senecio integerrimus	6	8	6	4	.11	.09
F	Stellaria longipes	5	*-	3	-	.04	-
F	Taraxacum officinale	-	2	-	1	-	.00
F	Tragopogon dubius	9	1	3	1	.01	.00
F	Trifolium gymnocarpon	47	33	21	17	.28	.52
F	Unknown forb-annual (a)	1	-	1	-	.00	-
Total for Annual Forbs		506	74	179	26	3.50	0.12
Total for Perennial Forbs		861	662	360	284	10.99	11.62
Total for Forbs		1367	736	539	310	14.49	11.75

* Indicates significant difference at % = 0.10

BROWSE TRENDS --
Herd unit 08B, Study no: 10

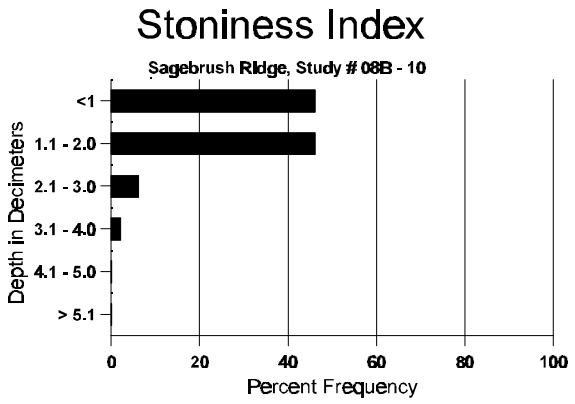
Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Artemisia tridentata vaseyana	85	82	17.29	20.70
B	Ceratoides lanata	1	0	.00	-
B	Chrysothamnus viscidiflorus viscidiflorus	2	3	.03	.03
B	Eriogonum heracleoides	28	30	1.86	1.55
B	Eriogonum microthecum	27	30	.97	.44
B	Purshia tridentata	29	30	2.84	5.14
B	Tetradymia canescens	0	1	-	.03
Total for Browse		172	176	23.01	27.90

BASIC COVER --
Herd unit 08B, Study no: 10

Cover Type	Nested Frequency		Average Cover %	
	'95	'00	'95	'00
Vegetation	469	463	50.19	63.35
Rock	105	28	.51	.25
Pavement	221	205	1.72	5.55
Litter	497	475	54.46	63.60
Cryptogams	2	4	.00	.18
Bare Ground	306	210	11.05	12.05

SOIL ANALYSIS DATA --
Herd Unit 8B, Study # 10, Study Name: Sagebrush Ridge

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
11.18	51.2 (13.07)	6.6	71.0	14.1	14.9	3.0	7.8	150.4	0.6



PELLET GROUP FREQUENCY --
Herd unit 08B, Study no: 10

Type	Quadrat Frequency		Pellet Transect	
	'95	'00	Pellet Groups per Acre ⁄00	Days Use per Acre (ha) ⁄00
Rabbit	2	-	96	N/A
Elk	-	-	17	1 (3)
Sage Grouse	-	1	78	N/A
Deer	6	1	252	19 (48)
Cattle	8	4	17	2 (4)

BROWSE CHARACTERISTICS --
Herd unit 08B, Study no: 10

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
S	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	95	4	6	1	-	-	-	-	-	-	11	-	-	-	220			11
	00	41	-	-	-	-	-	-	-	-	41	-	-	-	820			41
M	95	45	86	5	-	-	-	-	-	-	136	-	-	-	2720	25	39	136
	00	86	10	-	14	-	-	-	-	-	86	-	24	-	2200	23	36	110
D	95	4	16	12	-	-	-	-	-	-	24	-	2	6	640			32
	00	54	4	-	2	-	-	-	-	-	36	1	9	14	1200			60
X	95	-	-	-	-	-	-	-	-	-	-	-	-	-	920			46
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	740			37

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	60%	10%	04%	+15%
'00	07%	00%	22%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	3580	Dec:		18%
'00	4220			28%

Ceratoides lanata

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
M	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	6	9	1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	20	Dec:		-
'00	0			-

Chrysothamnus viscidiflorus viscidiflorus

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
M	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40	12	17	2
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60	12	17	3
D	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	+50%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	40	Dec:		0%
'00	80			25%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Eriogonum heracleoides																		
Y	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	13	-	-	-	-	-	-	-	-	13	-	-	-	260			13
M	95	68	-	-	-	-	-	-	-	-	68	-	-	-	1360	11	19	68
	00	66	-	-	-	-	-	-	-	-	66	-	-	-	1320	4	10	66

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	+14%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	1360	Dec:		-
'00	1580			-

Eriogonum microthecum																		
S	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	95	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
	00	5	-	-	-	-	-	6	-	-	11	-	-	-	220			11
M	95	49	-	-	5	2	-	-	-	-	56	-	-	-	1120	7	12	56
	00	33	-	-	8	-	-	-	-	-	39	1	1	-	820	6	7	41
D	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	03%	00%	00%	-17%
'00	00%	00%	02%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	1280	Dec:		0%
'00	1060			2%

Gutierrezia sarothrae																		
M	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	11	16	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	0	Dec:		-
'00	0			-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Purshia tridentata																		
S	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	4	-	-	1	-	-	-	-	-	5	-	-	-	100			5
M	95	3	7	13	-	5	7	-	-	-	35	-	-	-	700	16	36	35
	00	9	7	1	2	4	3	1	-	-	27	-	-	-	540	19	47	27
D	95	-	1	-	-	-	-	-	-	-	-	-	-	1	20			1
	00	1	-	1	-	-	-	-	-	-	2	-	-	-	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	34%	53%	03%	-11%
'00	32%	15%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	760	Dec:		3%
'00	680			6%

Tetradymia canescens																		
M	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	9	10	0
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20	8	14	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'95	0	Dec:		-
'00	20			-